



## TeleGroup integrated hospitality solutions

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- *Design & Building of IP infrastructure*
- *IP Communication, Video services & Wireless networks*
- *Smart Hotel Solutions*
- *Technical Security Solutions*
- *Electric Power Solutions*



## DESIGN &amp; BUILDING OF IP INFRASTRUCTURE



## Structural Cabling

For hospitality properties, TeleGroup delivers modern technology infrastructure:

- Designed to deliver many different services over a converged network
- Optimized for flexible bandwidth demands
- Integrates with new and emerging technology practices and standards
- Upgrades, new cable runs, and technology installations are performed “invisibly” to create best guest experience





## Motorola Solutions

### Wi-Fi solutions for hotel guests

Motorola Wi-Fi solutions allow your guests a fast and reliable Internet connection from anywhere in the hotel facilities, from any personal device (smartphone, tablet, laptop...) at any time, which has become a standard request from the guests all over the world. The solution involves indoor and outdoor access network infrastructure. Good connectivity enables your guests a superb comfort using wireless internet inside and outside of the hotel facilities and increases a pleasurable stay due to easy access to data and applications.



Provide your guests the connectivity they want as well as:

- Provide superior stay for hotel guests by enabling wireless connectivity inside and outside of the hotel facilities
- Increase the satisfaction of your customers by allowing easy access to their data and applications
- Increase the revenue by offering free-based wireless connectivity



## Solutions for connecting with customers



The solution implies the mobile terminals use with bar code scanner for automatic reading of ticket events that are organized in the hotel, which performs automated control assistance and avoids creating lines at the entrance. Make your employees more efficient by performing automated ticket control using Motorola mobile terminal with an integrated bar code scanner and also by speeding up the registration process which will also make guests more satisfied. Combined with Motorola devices for voice communication, your employees will work in coordination and be more productive.

Connect with your guests from the moment they register in the hotel by sending them on mobile phones promotional hotel services (scheduling spa treatments, meeting with Managing Director, hotel map, etc.).

## Multimedia solutions for the hotels

Whether the guests want a nice, relaxing break or a comfortable business stay, they expect a pleasant experience that will be remembered. TeleGroup offers IPTV and Digital Signage solutions that will provide your guests what they really expect.

Our fully IP-based solution that ensures multimedia content in the rooms and public areas of the hotel provides an opportunity to differentiate yourself against the competition. At the same time our hotel solution is visually appealing, easy to handle and provides an opportunity for the hotel brand promotion.

Customer Portal is a fully customizable to the hotel's offer and customer's needs. Via user's portal that is displayed on the LCD screen in the room, the guest has access to the television and radio service, movies, local information, news. It is supported on the most Smart TVs and Set Top Boxes.

Our multimedia solution for the hotels is easily associated with the hotel management system. The work with hotel management solutions of large manufactures is enabled and if it's necessary it is possible to do the adjustment in any hotel management system. This way, the customers can perform check-out, pay the bill, order room service, book a restaurant, order a taxi, take a look at the weather forecast, check flight schedule, access to local information, watch local news and more.



Hotel's multimedia solution not only that enables guests to access a variety of hotel services, but facilitates the work of receptionists allowing them to focus on providing services and assistance to guests.



## Benefits of the hotel multimedia solution:

- Allows creation of attractive and personalized experience for each hotel guest
- Combines all the basic multimedia services with services offered by the hotel within a single user interface
- Enables advanced use of hotel services and facilitate their promotion
- Creates new revenue streams
- The user's interface is easy to create. The rapid changes in the interface as well as its improvement is possible
- Easy and simple rebranding of the user's interface
- Guests have opportunity to access news, local information, weather, special offers, access to the Internet and all of that via TV screen in the room
- Allows guests to record, rewind, pause and accelerate video playback
- Provides a wide selection of TV and radio channels
- Allows guests to set wake-up call, order room service, quick and easy check-out, review accounts and more services via TV screen in the room
- Multimedia solution can be used either via Smart TV or via Set Top Box.



## Wireless ordering and payment



Whether you serve your guests in a full-service restaurant, by the pool or in a stadium seat, wireless ordering and point of sale (POS) solutions can increase your sales, enhance the productivity of your servers and ultimately increase guest satisfaction. The time-consuming process of handwriting an order, walking it to the kitchen and re-keying it later for billing is obsolete when you equip your service staff with a mobile restaurant POS or hotel POS systems from Motorola. Now, orders can be transmitted wirelessly to the kitchen or bar from the table, the check can easily be generated directly from the order, and card payments can be processed right at the

table.

### **Features and benefits:**

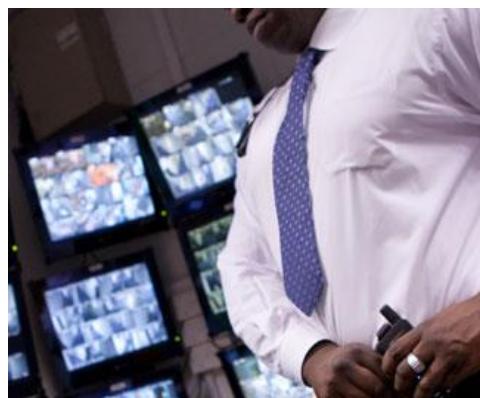
- Eliminate order errors by only needing to enter an order once
- Maximize check size by turning your servers into salespeople
- Increase table turns by reducing guest wait times
- Increase server productivity by enabling servers to handle more tables
- Improve credit card security by allowing customers to pay at the table so that their credit card never leaves their sight
- Serve more guests in the same period of time at stadiums and high volume cocktail lounges

## Guest safety and security

Using Motorola solutions you can increase hotel safety for your guests by proactively mitigating potential threats and quickly responding to the hotel security incidents.

### **Features and benefits:**

- Video surveillance to monitor all aspects of your facilities to ensure hotel safety and security for all of your guests
- Interoperable, reliable communication between all government agencies – federal, state and local – and your hotel security staff
- Quickly respond to incidents by equipping your security personnel with integrated data and voice capabilities



## Staff communications and management



If you want repeat business, you've got to provide optimal service to guests. Motorola Hotel Staff Communication and Management solutions incorporate mobile radio and mobile computer technology that will empower your staff to offer superior service. Front desk check-in lines will be shorter. Your concierge staff will be ready and able to respond promptly where they are needed most.

### Features and benefits:

- Improve efficiency through wireless hotel staff communication and mobile management of tasks
- Notify hotel staff management of issues requiring prompt resolution, immediately
- Increase staff productivity as a result of alerts sent upon completion of tasks – so staff can be redeployed quickly
- Increase guest satisfaction by ensuring your facility is in pristine condition

## Enterprise asset and inventory management



Mobile computing and advanced data capture can be used to streamline enterprise inventory and asset management. Mobile computing and advanced data capture can be used to streamline enterprise inventory and asset management. With a quick scan of a bar code, inventory is visible at delivery and can be immediately reconciled. Valuable assets can be tracked via RFID tags and readers. The end result of this real-time and highly efficient is that errors can be immediately addressed and out-of-stock situations avoided. With Motorola's Enterprise Asset and Inventory Management Solutions, manual inventory is a thing of the past, and expensive facility assets are readily located and secured.



Facilities maintenance solutions for hospitality

The condition of your facilities has a major impact on the guest experience. From plumbing and air-conditioning to televisions and slot machines, all systems and mechanical appliances must be in working order, at all times. A hotel maintenance staff equipped with integrated voice and data mobile devices is always within reach and your managers have visibility into the progress of work orders. When immediate attention is required, use push-to-talk voice communications or text messaging. You can even use mobile computers to process work orders through completion, generating an automatic audit trail during hotel or restaurant maintenance.

Whether you operate a restaurant, hotel, stadium or casino, the assets and mechanical systems throughout your facility must remain up and running; otherwise your customers and your business will suffer. Motorola Hotel and Restaurant Maintenance Solutions incorporating mobile radio, mobile computing and bar code scanning technology can provide a number of important benefits to your business:

- No more errors and oversights resulting from facilities task management paperwork
- Immediate notification of facilities issues requiring prompt resolution
- Higher restaurant and hotel maintenance staff productivity because alerts are sent when tasks are completed and staff can be quickly redeployed to other projects
- Higher guest satisfaction by ensuring your facility is in pristine condition



## Digital television

Television in the hotels is an indispensable part.

Company Vector can provide unique solutions for receiving and distribution of digital television. Product Tantrax is an IP Oriented operator's headend modular platform. This is modern multimedia platform which, thanks to its great capabilities and functionalities, will satisfy the requirements of both ISP and HFC operators as well as content providers. The standard 1 RU enclosure and the use of functional modules makes TANTRAX a universal solution. In one case we have 6 slots available, in which we can install any combination of modules.

The platform supports every type of input IP, ASI, QAM, SAT, COFDM, SDI and every type of output IP, QAM, ASI, COFDM. There are also cards available that support descrambling, scrambling, encoding, decoding and transcoding. This allows any system scenario to be built using TANTRAX.



### Features and benefits:

- Operators class stability and security
- The ability to build any system scenario
- Functionality that meets the requirements of HFC and ISP operators and content providers
- Secures operators future needs and services development
- IP oriented
- High integration and modularity level



## Cisco Connected Hotel

Cisco Connected Hotel delivers an IP infrastructure that effectively supports the current and the next generation of hospitality solutions. A Cisco IP network will become as fundamental as plumbing, piping, and wiring in every hotel property. With a converged Cisco IP network, hotels can add services and reduce costs by integrating existing communications, security, and building automation systems over one secure, flexible, and scalable network. It is the network foundation that will meet today's needs and support future requirements.



### Guest Services

Hotels can better respond to guests using automated check in and checkout, inline concierge, service, and help desk requests. Next-generation services, delivered over a Cisco converged network, include personalized room settings for controlling temperature and lighting, personalized interactive multimedia, and high-speed Internet access with personalized content.

### Staff Services

The Cisco Connected Hotel allows hotels to improve sales and marketing capabilities, enhance room management, refine front-office services, and develop better employee and human resources management. Hotels can develop their own property-specific digital TV channels, offering personalized, flexible, dynamic content. In addition, hotel staff can access more current information about room status and availability, minibar status, and order requests and delivery, by consolidating all internal hotel management systems onto one network.

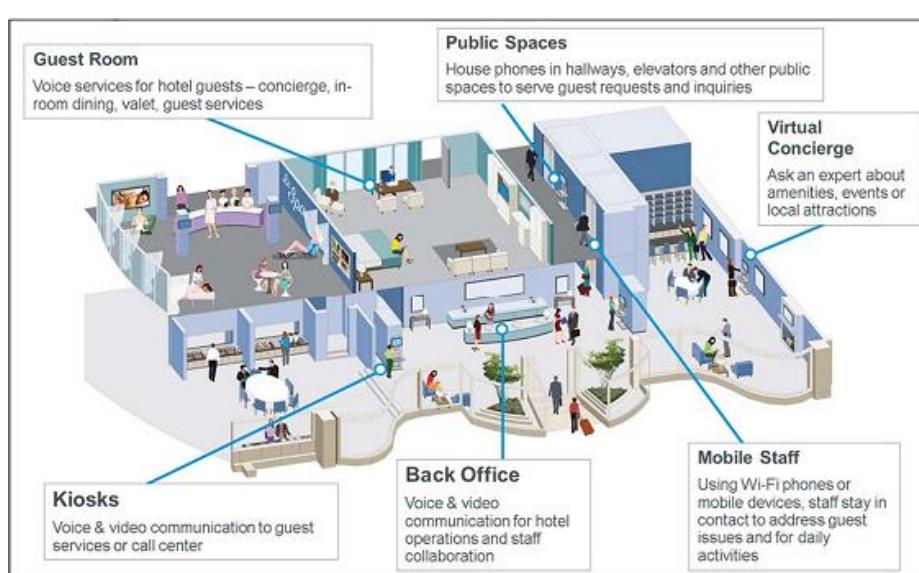
### Property Management Operations

The Cisco Intelligent Property allows hotels to integrate disparate building systems that run over separate networks with independent control devices. Lighting, elevators, HVAC, fire control, energy management, video surveillance, and other security technologies can all be managed and controlled over one converged, IP-based network. This same network supports all staff and guest services, offering a level of integration that allows hotels to get the most out of their resources—technology, employees, and their property.



## Cisco Unified Hotel Communications

The Unified Hotel Communications solution from Cisco is a unified communications platform that delivers guest communications as well as hotel staff communications together in a single platform.



at their desk or mobile with Wi-Fi phones, smartphones, or tablets including his includes voice, messaging, and video to all communication clients.

### Benefits:

Cost Effective Voice - full PBX replacement for hotels with significantly smaller IT requirements in an on-premise solution. This reduces hotel IT costs and simplifies deployment that can be implemented around the globe.

Anywhere Access - full rich unified communications to the hotel staff wherever they are on the property:

## Cisco Connected Mobile Experiences for Hospitality



Cisco Connected Mobile Experiences solution is built on Cisco Unified Access infrastructure and uses the Advanced Location Services in the Cisco Mobility Services Engine to personalize the guest mobile experience and engage the guests through their own mobile devices.

### Benefits:

Indoor location-based services - Mobile applications provide wayfinding capabilities

for guests displaying “turn-by-turn” directions and indoor mapping information throughout the property. Location services can also provide contextual information to deliver more personalized and relevant services to guests exactly when they need it.



Targeted location-based messaging - Hoteliers can deliver personalized messages, based on current location, to the user's smartphone or tablet. For example, guests in a restaurant can find the menu and restaurant information.

Integration with other hotel systems and app usage - Integration with other systems opens up a range of additional scenarios. For example, hotel guests can use the loyalty app to change their itinerary and make mobile purchases that can be posted back to the hotel guest folio in the Property Management System.

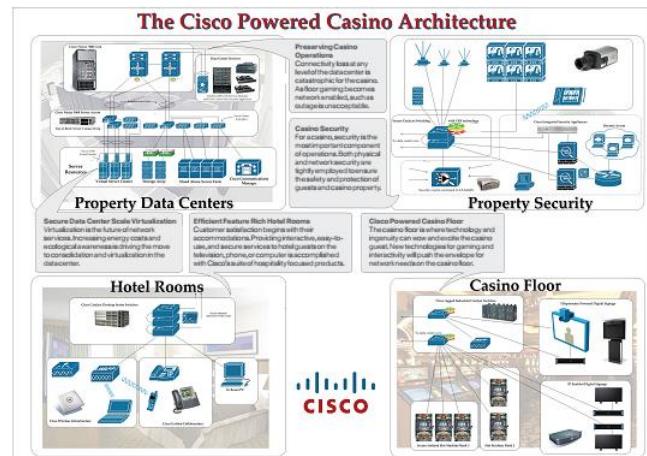
Advanced analytics - Detecting and anonymously tracking Wi-Fi signals from guest devices also provides hoteliers with visibility and analytics into guest flow and behavior that can be useful to improve the guest experience. For example, advanced analytics shows how guests move throughout the property in social groups as well as dwell times in public spaces or in amenity areas. You can use data analytics to drive operational efficiencies or improve customer service.

Automatic wireless connection - Cisco Connected Mobile Experiences allows users to automatically connect to the dedicated guest wireless network. The connection is tailored to the type of device the guest is using and also provides personalized content and network bandwidth in relation to the guest's loyalty level or as an additionally paid-for service.

## Cisco Connected Gaming

Cisco Connected Gaming floors will allow the right game, to be delivered at the right time to the right player with the appropriate denomination securely and reliably. IP technology, riding a Cisco powered network, will enable operational efficiencies such as inventory polling, centralized management of games, software, marketing, and hold percentages.

### Benefits:



Security - tools prevent attacks on the slot floor infrastructure, prevent impersonators from unauthorized access, and prevent the eavesdropping of communications and transactions between the gaming device and the servers.

Reliability - technologies to ensure that in the case of link failure, the slot bank will suffer little to no loss of communication.

Operational Efficiencies - switch can detect whether a gaming device, end cap, digital sign, or other is connected and configure the proper security and quality controls.

Wireless LAN - suite of security technologies that ensures the integrity and security of communications over the air

Wireless Mesh - extend High Speed Coverage to parking lots, outdoor areas, and golf courses



Data Security - constantly scan the slot network for malicious or out-of-the-ordinary data that could be a threat to the integrity of the games or the financial transactions traversing it.

Video Surveillance - viewing live and archived video that allows the customer to determine levels of authority for viewing cameras, and that can control movable cameras.

## HP Hospitality Solutions



### Overview

Today's business and casual travelers are more tech-savvy than ever. They expect access to high-speed internet service wirelessly from their laptop computers, smartphones, and other devices—anywhere—from the hotel lobby, to restaurants, to meeting rooms, and to the pool area. Providing guests with wireless services is no longer an option but a necessity for you to survive in an increasingly competitive industry. Likewise, you need modern converged infrastructure in order to be able to run various software which optimizes the everyday

business in hotels and hospitality facilities, a line of peripherals for your employees in order to care for each and every customers' needs.

- HP Hospitality Portfolio is divided in the following segments:
- HP FlexNetwork Architecture
- HP Converged Infrastructure
- HP Server solutions
- HP Storage solutions
- Virtualization solutions
- Personal Computers, Printing and Imaging Solutions



## 1. HP FlexNetwork Architecture

The hospitality industry is also looking for ways to improve employee productivity. HP networking products help you achieve these goals with an extensive portfolio of interoperable, standards-based solutions that deliver state-of-the-art communication and secure information sharing. Our robust, reliable and scalable solutions provide unmatched value, lower total cost of ownership and reduce administrative burdens to enable IT staff to focus on strategic initiatives.

### **Guest Privacy and Regulatory Compliance**

While guests are demanding internet access, they also want to be certain that their data and communications are secure. Regulatory compliance must also be taken into consideration prompting your organization to find ways to balance employee and customer access while protecting data.

The **HP FlexNetwork Architecture** allows you to:

- Offer open, accessible networks
- Ensure privacy of customer data
- Meet security requirements and safety regulations

Robust encryption and authentication grant per-user network authorization privileges and keep guest information private as it travels over the airwaves. Wireless intrusion detection and prevention guards the organization's network from unauthorized access from rogue access points and hacker attacks. Most importantly, HP intrusion detection does not interfere with wireless (IDS/IPS) access so critical communication channels are available.

### **Operational Efficiency**



You need a network infrastructure that will promote agility and boost productivity without sacrificing performance, raising costs or impacting security. The HP FlexNetwork architecture drives simplicity by segmenting network designs into functional building blocks and streamlines management; enhances agility with high performance, security, and accelerated provisioning; and saves money through a unique architecture and lower overall TCO.

### **HP MSM317 Access Device Series**



HP MSM317 Access Device integrates wired and wireless connectivity into a small unit that can be quickly and discretely installed in a standard wall outlet box. It provides four Ethernet ports, a 2.4 GHz wireless access point, and a pass-through RJ-45 connection to support a range of service and user connectivity options. One of the front panel Ethernet ports can be configured as an IEEE 802.3af-compliant PSE port to enable devices such as IP telephones to be powered directly from the unit. The HP MSM317 Access Device requires a single Power over Ethernet (PoE) cable drop, reducing cabling, switch ports, and power sourcing equipment. The product is designed to provide wireless coverage for a 440 square foot (40 square meter) room. Actual coverage area, and signal levels within the coverage area, will be effected by mounting location, building construction and obstacles.

- Single radio
- IEEE 802.11b/g
- Self-healing, self-optimizing local mesh
- Two internal antennas
- 4 10/100 managed Ethernet ports

## Product specifications

### Quality of Service (QoS)

- **IEEE 802.1p prioritization** — delivers data to devices based on the priority and type of traffic
- **SpectraLink voice priority (SVP) support** — prioritizes SpectraLink voice IP packets sent from a SpectraLink NetLink SVP server to SpectraLink wireless voice handsets to help ensure excellent voice quality
- **Wireless** —
  - L2/L3/L4 classification: IEEE 802.1p VLAN priority, SpectraLink SVP and DiffServ
  - Wi-Fi MultiMedia (WMM), IEEE 802.11e EDCF, and Service-Aware priority assigned by VSC
  - Maximum VoIP call capacity: 8 active calls on IEEE 802.11b/g
- **Network management** —
  - Fully manageable using HP Manager and HP Mobility Manager
  - SNMP v2c, SNMP v3, MIB-II with Traps, and RADIUS Authentication Client MIB (RFC 2618)
  - Embedded HTML management tool with secure access (SSL and VPN)
  - Scheduled configuration and firmware upgrades from central server
- **Diagnostic** —
  - Client event log records association, authentication, and DHCP events
  - Packet capture tool for Ethernet and IEEE 802.11 interfaces (PCAP format)
  - Data rate matrix
- **RF management** —



- Automatically selects channel on power-up and continuously improves channel selection based on background interference scan
- Configurable background rogue scanning
- Automatically adjusts transmit power to reduce interference

## Connectivity

- **Auto-MDIX** — automatically adjusts for straight-through or crossover cables on all 10/100 ports
- **IEEE 802.3af Power over Ethernet support** — simplifies deployment and dramatically reduces installation costs by helping to eliminate the time and cost involved in supplying local power at each access point location. Unit can be powered by 802.3af or PoE+ source
- **Power Forwarding** — PoE Class 2 (6.49W) when powered by 802.3af

## Mobility

- **Anywhere, anytime wireless coverage** —
  - Single radio IEEE 802.11b/g access points with integrated antenna
  - Per-radio software-selectable configuration of frequency bands
  - Self-healing, self-optimizing local mesh extends network availability
- **Interoperability** — Wi-Fi Alliance certifications, including IEEE 802.11g Wi-Fi and WPA2 to help ensure multivendor interoperability
- **Virtual Service Communities (VSCs)** —
  - Up to 16 SSIDs, each with unique MAC address, configurable SSID broadcasts
  - Individual security and QoS profiles per VSC
  - Configurable DTIM and minimum data rate per VSC
  - Each VSC mapped to separate VLANs
  - WMM and/or WMM-PS
  - Security filter
  - IP filter
- **AP client access control functions** —
  - IEEE 802.1X authentication using EAP-SIM, EAP-FAST, EAP-TLS, EAP-TTLS, and PEAP
  - MAC address authentication using local or RADIUS access lists
  - RADIUS AAA using EAP-MD5, PAP, CHAP, and MS-CHAPv2
  - RADIUS Client (RFC 2865 and 2866) with location-aware support
  - Layer 2 wireless client isolation
- **Captive portal functions** —
  - Splash page advertisement support
  - New user versus already registered
  - Ad page advertisement support
  - Static advertising support
  - Frame insertion support
  - Static advertising support
- **Auto Channel Select (ACS)** — helps reduce radio co-channel interference by automatically selecting an unoccupied radio channel



## Security

- **Choice of IEEE 802.11i, WPA2, or WPA** — locks out unauthorized wireless access by authenticating users prior to granting network access; robust Advanced Encryption Standard (AES) or Temporal Key Integrity Protocol (TKIP) encryption secures the data integrity of wireless traffic
- **Local wireless bridge client traffic filtering** — when enabled, prevents communication between wireless devices associated with the same access point
- **IEEE 802.1X** — provides port-based user authentication with support for Extensible Authentication Protocol (EAP) MD5, TLS, TTLS, and PEAP with choice of AES, TKIP, and static or dynamic WEP encryption for protecting wireless traffic between authenticated clients and the access point

## Warranty and support

- **Lifetime warranty** — for as long as you own the product with advance replacement and next-business-day delivery (available in most countries)
- **Electronic and telephone support** — limited electronic and telephone support is available from HP; refer to the HP Web site at [www.procurve.com/support](http://www.procurve.com/support) for details on the support provided and the period during which support is available
- **Software releases** — refer to the HP Web site at [www.procurve.com/support](http://www.procurve.com/support) for details on the software releases provided and the period during which software releases are available



partners, delivering a world-class server experience to your business.

## 2. HP Converged Infrastructure

HP delivers superior server choice that can reliably support any workload. Our commitment to focused innovation allows HP Server customers to do more with less. We bring it all together through HP services, support and consulting and a broad network of

### a. HP Servers - The world's most intelligent servers

HP ProLiant servers power the web and nearly every aspect of your daily life. HP ProLiant servers provide a comprehensive portfolio for companies of all sizes, across all industries and for any type of workload.

- Run applications six times faster
- Deploy updates three times faster

### Unparalleled portfolio of resilient systems

When you need continuous business for your mission-critical environments, HP's Integrity servers deliver. The HP Integrity server portfolio's unparalleled resiliency, availability, and security empower



your enterprise business to quickly adapt to changing conditions while maintaining core business processes and customer-facing interactions.

- Enterprise systems for mission-critical environments
- Over 70% of the world's Global 100 are powered by HP Integrity servers

## HP Server Infrastructure Management

Take command of your infrastructure across the lifecycle with embedded on-system capabilities, through scalable on-premise management to cloud-based, anytime/anywhere access to health monitoring and warranty/contract tracking.

- Fast configuration, provisioning and updates with a software-defined approach
- Reduced unplanned downtime through proactive alerting and remote access

## b. HP Storages – Accelerate application performance

HP StoreVirtual 4335 Hybrid Storage with Adaptive Optimization delivers lower cost and higher performance for your unpredictable workloads.



### Recover data faster

Not only that, HP StoreOnce eliminates backup window issues with faster backup and scale plus a Get Protected Guarantee to reduce capacity requirements—all at a lower cost per TB/hr. Move to the next era of backup.

## HP 3PAR StoreServ Storage



With flash-optimized storage enhancements, process more transactions per second, reduce latency and save on flash media—all while having absolute QoS control to assure service levels.



### 3. Virtualization solutions

#### Accelerate value

Virtualization value is within your reach. Quickly and safely move beyond server virtualization by creating a ‘multiplier effect’ across servers, storage, network, clients, and management with the most comprehensive virtualization portfolio in the industry.



#### Protect investments

Be prepared. Is your IT ready for the world of mobility, Big Data and cloud? Safeguard your company's information and secure your livelihood in the process through creating a change-ready virtualized IT environment now.



#### Transform IT

Virtualization beyond the hardware. It's something overlooked but vitally important—your virtualization strategy needs to look beyond the infrastructure. Transform your IT organization by turning virtualization into a strategic business advantage through evaluating your people, processes, and policies.



#### Resources

Not sure what you are looking for? To get started, educate yourself more by checking out our library of virtualization assets. Find online case studies, industry and HP white papers, videos, demos and more. Tailored specifically for virtualization, you are sure to learn something new.



Virtualization solutions are provided on a turnkey basis, covering the full range of converged infrastructure benefits in order to provide everything from virtualization of servers and storages to full VDI solutions (Virtual Desktop Infrastructure).

### 4. Personal Computers, Printing and Imaging Solutions

HP traditionally delivers high quality and stylish PCs, Notebooks and Workstations which can be configured to order and fully customized. The vast portfolio includes number of Printers and Multifunction devices (HP Officejet Pro, HP LaserJet MFPs, Scanners etc.), Desktop PCs (Small form factors, All-in-One Workstations, Thin Clients for VDI etc.), Tablets, Laptops and many many more



Your one stop shop for all IT needs in Hospitality



Our experts stand at your disposal for all inquiries regarding any aspect of your IT operations. We can provide you with solutions from Mission-Critical Access, Multilayer Security, Intelligent resilient frameworks, Unified Management and everything that will ensure the satisfaction of your clients!

## Audio and Video conference systems

The **Bosch DCN Wireless Discussion System** offers organizations exceptional functionality and freedom. Conferences and seminars in both small and large venues can now be set-up with the ultimate ease and flexibility.

### DCN WCCU Wireless Central Control Unit



The DCN-WCCU is the brain of the DCN Wireless system. It provides control for up to 150 wireless

discussion units and 95 DCN Next Generation wired units.



The WCCU uses Bosch's proprietary optical network for easy connection to the wireless access point and other Bosch conference equipment. Networks can be set-up in single branch or redundant loop configurations, depending on the installed equipment. For connection to DCN-IDesk interpreter desks, the WCCU has two outlet sockets for DCN trunk-cables. In combination with a PC and the Conference Control Software (DCN-SWSMV), the WCCU brings greater sophistication to conference control.



- 19" (2U) housing for table top or rack mounting
- Handgrips for easy transport
- Mains on/off switch
- 2 x 16 Character LCD display for status information and CCU configuration
- Rotary control to navigate through the LCD menus
- Four red LED overload indicators (2 for the DCN network outputs, 2 for the optical connections)
- Up to 4 open microphones (3 for delegates and 1 for the chairman)

#### DCN WAP Wireless Access Point

The DCN Wireless Access Point (WAP) links the central control unit (WCCU) and the wireless discussion units. To ensure security, data exchange between the WAPs and the wireless discussion units is digitally protected.

The WAP is linked to the WCCU using Bosch's proprietary optical network, which provides digital optical communication and power supply over a single cable. The second optical network connector on the WAP allows the system network to be expanded from a single branch to a redundant loop configuration. In this 'loop-through' configuration, DCN Wireless can be interfaced with compatible Bosch equipment such as Audio Expanders, CobraNet™ interfaces and the Integrus language distribution system.



- Integrated DSP's, with a high speed of 100MIPS combines digital audio coding/ encoding and digital audio compression technique to guarantee highest output quality.
- Besides the Cinch-inputs for the different languages exists two additional LF-inputs for CD-Player or other devices with 0dB-signals.
- No influencing and distortion of different channels.



- The central unit is modular made as 19" desktop housing with 2U and is equipped, in the smallest configuration level, with 4 channels.

### DCN-WD-D Wireless Discussion Unit



To the participant the most important part of a conference system is the discussion unit. Bosch has built on the elegant design of the DCN Next Generation discussion units to create a new series of wireless discussion units with unrivalled looks and features.

Maximum speech intelligibility is guaranteed at all times. Operating in the 2.4 GHz (license free) band, the wireless discussion units produce crystal-clear sound due to a very high signal-to-noise ratio and antenna diversity. This means the signal is transmitted along different propagation paths, ensuring optimal receipt. The system is also protected against interference from other wireless equipment such as mobile phones, Bluetooth devices and WiFi networks.

Microphone button with a red or green illuminated ring. Red indicates microphone is active, green indicates request-to-speak accepted

- Headphone volume control buttons On rear
- Out-of-range indicator
- Battery low indicator Under base
- Recessed 'De-init' switch
- Mode select switches (delegate, chairman, etc.) Interconnections
- Socket for pluggable microphone
- Two 3.5 mm (0.14 in) headphone sockets stereo jack type
- DC power input from DCN-WPS (accessible when battery pack is removed)

### DCN WDDCS D Wireless Discussion Unit with Dual Channel Selector



To the participant the most important part of a conference system is the discussion unit. Bosch has built on the elegant design of the DCN Next Generation discussion units to create a new series of wireless discussion units with unrivalled looks and features.

The DCN-WDDCS-D Wireless Discussion Unit with Dual Channel selector enables participants to speak, register a request-to-speak, listen to the speaker or to an interpreter of their choice.

- Two alphanumeric displays for language channel selection with number and abbreviated channel name
- Two individual channel up and down selection buttons



- Two individual microphone buttons with a red or green illuminated ring:
  - Red indicates microphone is active
  - green indicates request-to-speak accepted (\*)
- Two individual headphone volume control buttons
- Out-of-range indicator
- Battery low indicator
- Recessed 'De-init' switch
- Mode select switches (delegate, chairman, etc.) Interconnections
- Socket for pluggable microphone
- Two 3.5 mm (0.14 in) headphone sockets stereo jack type
- DC power input from DCN-WPS (accessible when battery pack is removed)

## SMART HOTEL SOLUTIONS



## Hospitality Management Software

### Hotels & Resorts

MICROS-Fidelio offers a wide range of scalable and modular property and central solutions for effective hotel management. Whether you operate a single boutique hotel or an international, multi-branded hotel chain, MICROS-Fidelio will put together a solution that perfectly fits your unique business needs. The



portfolio encompasses solutions for front office, back office, CRM, sales and catering, revenue management, reservations, distribution and a lot more. With more than 1,000+ certified interfaces to other systems we ensure the best connectivity and smooth running business processes.

### The hotel management solution for special requirements

Just as every property has its own flair, every business has its own specific needs. Responding to the ever-growing specialisation in the hotel industry, MICROS-Fidelio Suite8 offers the flexibility to fulfil the special requirements of the individual market. Regardless of whether you are a resort or city hotel, a family-run boarding house or a luxurious spa, a deluxe or a budget hotel – Suite8 perfectly adapts to your needs. The easy-to-install system offers a wide range of configuration options and combines user-friendly modules for customer relationship management, property management, conference and catering management, materials control, online booking and more, into one comprehensive and integrated solution.

#### Fully integrated for:

- Process automation
- Optimised occupancy rates and increased sales
- Greater guest satisfaction and loyalty

### Full – featured sales and catering management software

MICROS-Fidelio offers full-featured sales and catering management software for conference centres that can be deployed either on a stand-alone basis or integrated with our hotel management solutions.

#### Our solution for conference centres covers:

- Conference bookings
- Event planning and management
- Coordination of tasks and activities
- Resource management
- Calendar of events
- Room planner
- Graphical display of function rooms

### Meeting the special needs of the wellness and spa industries

MICROS-Fidelio offers a wide range of integrated solutions to fit the specific needs of wellness and spa businesses. We combine spa management technology, visitor management and POS systems into one comprehensive and integrated solution.

#### Perfectly designed for:

- Wellness hotels and resorts
- Theme/fun parks





- Sports and fitness clubs
- Day spas and coiffeurs

## e-Commerce services

### **Rely on us to take you everywhere you need to be online**

Take full advantage of the Internet as a powerful marketing channel for your hotel. At MICROS eCommerce Services, our mission is to anticipate all of the key sites that your customers use to find and book accommodation on the Web, and determine where you need to be to grow your hotel business online.

We offer both turnkey and customized solutions to fit all business sizes, from the smallest boutique hotel to the largest international chain.

Our international team consists of business analysts, project managers, online marketers, software engineers, IT specialists and consultants – offering you a wealth of experience in e-commerce and Internet distribution.

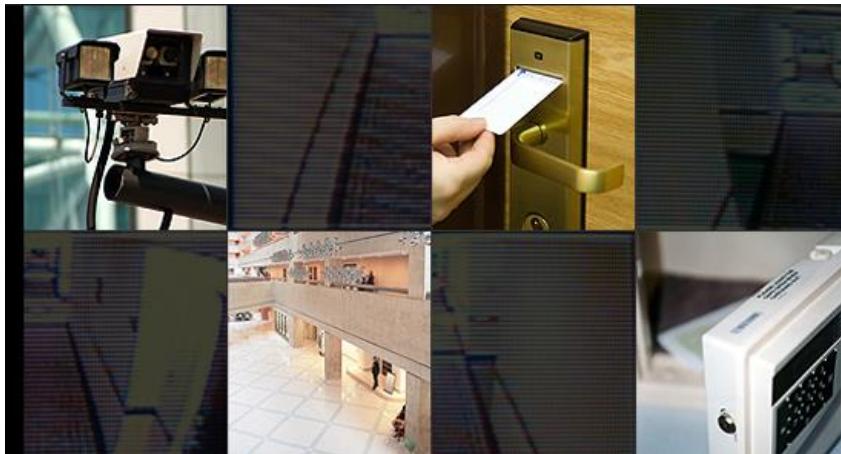
We all share that one passion: To provide you with eCommerce services that meet your unique needs as a hotelier, by building your brand, creating loyal customers and generating revenue.

### **Benefits:**

- MICROS eCommerce offers you a one-stop shop for consultancy, e-commerce products, channel distribution and digital marketing services.
- Our proven experience with hotel system integration is unparalleled, streamlining your business process through easier, more efficient management.
- Our subsidiary, TIG Global, has provided the hospitality industry with specialized e-marketing services for the last 10 years, delivering measurable return on investment to over 1.000 hotel customers.
- We at MICROS are experts in providing solutions for hotels, with 40 years of experience in the hospitality industry and more than 300.000 customers in over 140 countries.



## TECHNICAL SECURITY SOLUTIONS



### Fire Alarm System

Thanks to the modular configuration, the innovative FPA-5000 Modular Fire Panel easily adapts to local circumstances and regulations. Due to the different functional modules, country-specific characteristics are accommodated in the connection just as quickly as the respective alarm handling. The fire panel is available with two different housings:

- Housing for mounting directly on the wall
- Frame installation housings which are fitted to the mounting frame and can be swiveled.
- With the aid of special mounting kits, the housings can be mounted in 482.6 mm (19") cabinets. All housings can be extended with various additional housings for all conceivable applications. The FMR-5000 Remote Keypad offers the decentralized operation of a control panel or control panel network. Thanks to the external CAN and Ethernet interfaces, several Panel Controllers and Remote Keypads can be interconnected. Using either a single-loop structure or multiple-loop structures with Ethernet backbone, the network can be adapted to nearly every application conditions.

Additionally, the Ethernet interface allows for the connection to a Building Management System (BIS Bosch Building Integration System) via an OPC server. FPA-5000 systems can be connected to the Bosch UGM 2040 Universal Security System and thus, be integrated into a large network system.

#### Functions

The operation and the processing of all messages are designed control panel with its TFT touch-screen offering a menu-driven handling and multi-color display. To that end, there are permanently located keys on the right, bottom, and upper edge of the display as well as variably located virtual keys in the touch-screen area.



## Modular Structure of the FPA-5000 Modular Fire Panel

Due to its modular structure, the FPA-5000 Modular Fire Panel provides complete flexibility and thus customized solutions for any application. Depending on the requirements, the following selection can be made when planning:

1. Housing type: Frame installation or wall-mount
  - Selection of a basic housing
  - Optional Extension Housings
  - Optional Power Supply Housings
  - Optional kits for installation in 482.6 mm (19") racks
2. Operating and Display Unit with Panel Controller
  - Selection from the various language variants
3. Panel Rail
  - Selection according to housing type and/or number of required functional modules
4. Functional modules
  - Selection based on planning and country-specific requirements
5. Power supply
  - Batteries
  - Additional power supply facilities
  - Power Supply Brackets are preinstalled ex-works for Frame Installation Housings
  - For Wall-mount Housings, Power Supply Brackets are selected as needed
6. Additional accessories
  - Front Doors
  - Printer with Frame Installation Housing
  - Cable Sets for special applications

## Modules

The functional modules are autonomous, encapsulated units that can be inserted into any control panel slot using "plug-and-play" technology. Thus, the power supply and the data traffic to the control panel are indicated automatically without any additional settings. The module is automatically identified by the control panel and functions in the default operating mode. Wiring to external components is performed using compact connector/screw terminals. After a replacement, only the connectors need to be reinserted; extensive rewiring is no longer required.

## Networking

Up to 32 Panel Controllers, Remote Keypads and OPC server can be interconnected within a network. Depending on the application requirements, Panel Controllers and Remote Keypads can be grouped, defined as network node or local node. Within a group, only panel conditions of the same group can be displayed. Regardless of the groups, network nodes allow for the display and handling of all panel conditions. Local nodes display the conditions of the related panel. When networking via CAN and/or Ethernet interfaces, the following connection topologies are optional:

- Redundant loop via CAN1 and CAN2 (max. 32 nodes)
- Ethernet loop (max. 32 nodes)
- Multiple CAN loops with Ethernet backbone and up to 32 nodes

For networking with optical fibers, you can use various converters.



## Detection Points

The Address Cards activate detection points. The FPA-5000 governs up to 4096 detection points. Each element and input which, after the programming, is able to set off an alarm requires a detection point.

Inputs are considered as detection points if they are programmed accordingly in the FSP-5000-RPS Programming Software.



## IP Video Surveillance

AXIS Camera Station is the ideal solution to meet the needs for efficient surveillance of small- and midsized installations, such as retail shops, hotels, schools and manufacturing sites – a proven solution with more than 50,000 installations worldwide. It is designed to perfectly match Axis' wide range of network video products and product features to optimize system reliability.

Cameras can be installed in exterior locations for real-time remote monitoring. A central management and security office uses AXIS Camera Station for video management, making the integration effective and easily managed.



The AXIS Camera Station user interface is developed with a focus on ease-of-use and intuitive handling, with navigation tools that provide quick access to cameras and recordings in the system.

AXIS Camera Station has multilingual support for English, French, Italian, German, Spanish, Polish, Russian, Korean, Japanese, Chinese, Swedish, Danish, Turkish, Arabic and Persian.

It's possible to view and control the cameras on your AXIS Camera Station system from your iPhone/iPad or Android phone.

Result by installing IP video surveillance is:

By placing the Axis cameras in appropriate areas including blind spots, security has been greatly enhanced and visitors are now easily identified. With the intelligent video motion detection function, the bandwidth used was also greatly minimized. Thanks to the Axis IP-based video solution, the entrance areas where



hundreds of people go in and out every day, the front desk where visitors check in/out, elevators, stores and emergency exit doors can be consistently monitored. Facility management monitoring has also been strengthened. specially installing a large number of dome cameras was a better approach to guests and visitors as the cameras are unobtrusive and blend in well with the hotel's interior design.

## Access Control

Is a scalable entry-level solution that is based on Bosch's Access Modular Controller (AMC) hardware which will allow you adapt to your changing system needs.

- Integration of a broad range of access and security functions like video and alarm verification and intrusion monitoring and elevator management.
- System management from multiple workstations or clients with different user profiles.
- Compatible with standard readers and card formats.
- Possibility to integrate credentials of different formats and technologies to permit new and legacy equipment to coexist, which enables a gradual, budget-friendly migration from one reader technology to another.



## Features

- Access Professional Edition lets you administer up to 10,000 cardholders and 128 readers as well as the corresponding inputs and outputs. That gives you plenty of latitude for accommodating needs as they grow. The system is compatible with industry standard readers and credential formats.
- Easy-to-use, intuitive graphical user interface.
- Client/Server Structure.
- Wide range of access and security solutions for different situations like video verification, alarm verification, arming/disarming of intrusion systems and elevator management.
- Customizable operator functions and additional cardholder privileges.
- Individuals can hold credentials of different formats and technologies such as a keyfob, card or long-range UHF token.

## Applications

Access Professional Edition is the ideal scalable solution for professional requirements of small- and medium-sized companies, like:

- Retail outlets
- Office buildings



- Factories
- Hotels
- Hospitals

An installation example could contain:

- Access Professional database server
- APE client workstation, alarm monitoring station
- AMC access controller for Wiegand or RS485 bus reader
- Access reader, e.g. ARD-R10, -R40
- Access reader with keypad, e.g. ARD-RK40-09
- IP video device, e.g. Dinion IP camera, VIP-X, Videojet X
- Central video storage system, e.g. Divar XF

Standard access control combined with CCTV provides a broad range of security solutions, such as access control, video and alarm verification or arming/disarming of area/partitions on an intrusion panel.

## Time and Attendance System

Keeping track of the time and attendance records of employees or contractors is a time-consuming and costly process for many private and public organizations. This is especially the case in large centers where

tracking hundreds or even thousands of staff carries considerable administrative overhead.



Time Attendance Software

Without a time and attendance system that also uses effective identity management, your time and attendance process is open to abuse. Statistics show that companies save an average of 2-5% of their payroll costs by implementing a time and attendance solution which uniquely identifies individuals, reducing the incidents of buddy punching and other time infringements.

This is security system that achieves four major business outcomes:

- It streamlines the whole time and attendance process, saving time and money.
- It safeguards against fraud.
- It reduces errors when compared with manual systems.
- It enhances oversight of the time and attendance tracking process, providing clear reporting.



## Intrusion Alarm System

Security systems for office buildings, industrial sites, hotels, banks, or museums should ideally be designed to comply with their individual demands. It is not only a question of protecting property but it could be people's lives that are at risk. Even the most complex security system needs to be designed to the requirements of a building to fulfill its purpose. The Bosch Modular Alarm Platform 5000 can be configured easily to meet all needs, no matter what type of application you have. In the event of a change in regulatory requirements, the system can also be adapted easily to the new requirements.



The combination of internal and external network buses is just another illustration of this. The internal network bus connects different system components within one building, whereas the external network bus enables you to connect buildings with each other via the existing network infrastructure.

Expansions can take place as needed, since each control panel covers up to 1500 system components. No matter what size or type, there is a suitable solution for every requirement. Furthermore, the Modular Alarm Platform 5000 can be integrated seamlessly into existing systems such as intrusion, CCTV, access control and building management.

## Public Address System

The Bosch Plena Voice Alarm System range is an ideal evacuation, message and background music solution for a variety of locations, such as schools, hotels, shopping centers, factories, offices and similar applications where public safety is essential.



user interface.

Designed as a versatile solution, the Plena Public Address and Voice Alarm System features a standalone plug-and-play concept easy to set up and control. For flexible system control, the remote control panels duplicate the Plena Public Address and Voice Alarm's

Based on a Plena voice alarm controller unit it can handle up to 6 zones with a built-in message manager, emergency microphone and a built-in 240 W power amplifier.



When connecting easy to install, 6-zone routers to the Plena voice alarm the number of zones extends to a 120-zone capacity. The power per zone is freely distributable per zone and is can be over 1000 Watts per router (or 6 zones).

In addition, 8 call stations with 32 call station keypads with programmable keys can be interconnected for message routing. Additional Plena amplifiers can be added to create two-channel systems.

## ELECTRIC POWER SOLUTIONS



### High Voltage

#### PRODUCTS AND EQUIPMENT FOR ELECTRIC POWER SYSTEMS

Cable accessories for underground power grids and installation in facilities:

- Cold and thermo shrink cable accessories for installation in low and medium voltage power grids
- Scotchlock connectors
- Instruments for testing and measurement of existing electric power installations
- All types of tapes for isolation and fixing power cables (PVC, rubber, textile, metal, semiconducting, self vulcanizing...)



Clamps for electric power and telecommunication networks and for poorly insulated conductors



- Side bumper (used for attaching isolators – binding)
- Tightening set for anchoring poorly insulated aluminum conductors
- Belts and clamps – iron and zinc for ABC cables
- Other accessories for poorly insulated conductors

## Accessories for overhead power networks

- Electric power concrete poles for power levels up to 35 kV
- Concrete consoles
- Prefabricated – concrete substations
- Poles for public lighting, lamps, light bulbs

## Products and solutions for electricity distribution

- SN compact plants (Ring Main Unit) up to 24kV
- Remote stations for medium voltage substations
- Failure indicators
- Medium voltage recloses up to 35kV
- Failure indicators
- Remote stations for overhead switches – disconnections
- Relays, PLC, PC based control, distributed I/O
- Software solutions for automation and control components
- Systems for remote control of medium voltage networks

Systems for remote monitoring and management of electric power systems (SCADA, BMS) and communication systems

- Motorola SCADA system consisted of ACE3600 modular platform and MOSCAD-M RTU. Motorola SCADA system consisted of ACE3600 modular platform and MOSCAD-M RTU able to communicate in networks with MOSCAD and ACE3600 systems. Satisfies a wide range of needs required by SCADA applications, with little power consumption, ideal for outside locations with solar and battery power supplies
- Analog and digital radio systems (MOTOTRBO) are offered through a wide assortment of handheld, mobile and base stations.



## UPS and Diesel Generators

Mains power demand for sensitive electronic equipment is growing while confidence in the availability and quality of utility mains is diminishing. Organizations are therefore using generators for a



reliable source of backup power; however connecting a generator directly to a sensitive load can cause problems. Inserting a UPS system can mitigate these, but further problems often arise from the interaction between the UPS and generator. These can be solved by sourcing suitable UPS equipment. The UPS battery is essential for protection from short term power outages. However the battery typically has a rectifier charger control circuit which imposes notches on the power feed, interfering severely with some types of generator control. Additionally, some charger circuits draw non sinusoidal input current, creating harmonics, measured as total harmonic distortion (THD).



Generators have inherent frequency control limitations while UPS inverters have limited ability to synchronize with a fluctuating frequency source.

UPS technology features solutions to these problems. A THD of below 7% at full load, a separate battery charger circuit, together with a Generator 'On' signal between UPS and generator reduces the UPS battery charging current, in turn reducing load, notching and heating effects on the generator. Step loading on the generator is controlled firstly by soft start of the rectifier current, eliminating high current peaks during mains recovery. UPS uniquely also limits step loading during mains recovery by sequentially switching on the rectifiers within a parallel configuration. Additionally, UPS systems are designed to eliminate excessive excitation and generator voltage rise.

## Electric Power Distribution

Whether in industrial plants or in buildings: Every technical system depends on a reliable supply of electric power. Even a short power failure may have serious consequences.

Distribution boards are especially suitable for building, residential and similar installations. They may be used also in industrial installations. They are manufactured for mounting into hollow walls, for concealing in plaster walls and for mounting on the wall.



Sheet-steel switchboard cabinets fulfil all the requirements for constructing low-voltage electrical distribution installations. These can be used in such very simple applications as lighting, motor or control circuits as well as in the most demanding applications that require very sturdy cabinets, are configured with high rated currents, or high short-circuiting resistance.

The key to a pleasant feel-good atmosphere in hotel lobbies is the interplay between decorative light and functional light. From the moment guests enter the hotel they are made to feel welcome by light that draw attention to particular areas of the lobby and therefore makes it easier for them to find their way around. This area can be promoted by highlighting the ceilings.



There are two major considerations with lighting systems for corridors and stairs, namely orientation and safety. The right light in these areas therefore creates the perfect atmosphere in two ways. It helps guests find their way around a building – and gives them a feeling of safety and comfort during their stay.

AC power plugs and sockets are devices that allow electrically operated equipment to be connected to the primary alternating current (AC) power supply in a building. Electrical plugs and sockets differ in voltage and current rating, shape, size and type of connectors.



## HVAC

HVAC (heating, ventilation, and air conditioning) is the technology of indoor and vehicular environmental comfort. HVAC system design is a subdiscipline of mechanical engineering, based on the principles of thermodynamics, fluid mechanics, and heat transfer.



HVAC is important in the design of medium to large industrial and office buildings such as hotels, where safe and healthy building conditions are regulated with respect to temperature and humidity, using fresh air from outdoors.

There are many different types of heating systems. Central heating is often used in cool climates to heat houses and public buildings. Such a system contains a boiler, furnace, or heat pump to warm water, steam, or air in a central location such as a furnace room in a home or a mechanical room in a large building. The use of water as the heat transfer medium is known as hydronic. These systems also contain either duct work for forced air systems or piping to distribute a heated fluid to radiators to transfer this heat to the air. The term radiator in this context is misleading since most heat transfer from the heat exchanger is by convection, not radiation. The radiators may be mounted on walls or installed within the floor to give floor heat.



Ventilation is the process of changing or replacing air in any space to control temperature or remove any combination of moisture, odors, smoke, heat, dust, airborne bacteria, or carbon dioxide, and to replenish oxygen. Ventilation includes both the exchange of air with the outside as well as circulation of air within the building.

Air conditioning and refrigeration are provided through the removal of heat. Heat can be removed through radiation, convection, or conduction. Refrigeration conduction media such as water, air, ice, and chemicals are referred to as refrigerants. A refrigerant is employed either in a heat pump system in which a compressor is used to drive thermodynamic refrigeration cycle, or in a free cooling system which uses pumps to circulate a cool refrigerant (typically water or a glycol mix).



## Building Management System (BMS)

A Building Management System (BMS) is a computer-based control system installed in buildings that

controls and monitors the building's mechanical and electrical equipment such as ventilation, lighting, power systems, fire systems, and security systems. A BMS consists of software and hardware; the software program, usually configured in a hierarchical manner, can be proprietary, using such protocols as C-bus, Profibus, and so on. Vendors are also producing BMSs that integrate using Internet protocols and open standards such as DeviceNet, SOAP, XML, BACnet, LonWorks and Modbus.

### Benefits of BMS

- **Building tenant/occupants**
  - Good control of internal comfort conditions
  - Possibility of individual room control
  - Increased staff productivity
  - Effective monitoring and targeting of energy consumption
  - Improved plant reliability and life
  - Effective response to HVAC-related complaints
  - Save time and money during the maintenance
- **Building owner**
  - Higher rental value
  - Flexibility on change of building use
  - Individual tenant billing for services facilities manager



- Central or remote control and monitoring of building
- Increased level of comfort and time saving
- Remote Monitoring of the plants (such as AHU's, Fire pumps, plumbing pumps, Electrical supply, STP, WTP etc.)
- Maintenance Companies
  - Ease of information availability problem
  - Computerized maintenance scheduling
  - Effective use of maintenance staff
  - Early detection of problems
  - More satisfied occupants

## REGIONAL REFERENCES

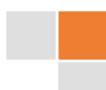


### We emphasize some of the most important international projects

1. **Ministry of Telecommunications Iraq, Kuwait, Libya:** Design & implementation of telecommunications infrastructure, 150.000.000,00 \$. TeleGroup was subcontractor of the company Invest Import from Belgrade, Yugoslavia
2. **NetCom, Norway:** Design, delivery & installation of MPLS infrastructure, power supply&UPS
3. **Port Usdunajsk, Ukraine:** Fibre optic WAN, TETRA, video surveillance, voice&data network, PTP radio links for cargo ships&harbour communication
4. **Cable and Wireless operator, Seychelles:** Measurement & testing the possibility of receiving television signals from satellites and project development
5. **Hotel Aqua ProMont, Serbia:** Building management system
6. **Hotel Patria, Serbia:** Design&implementation of power distribution
7. **Hotel Otrand, Montenegro:** Design&implementation of power distribution



8. **Hotel Hilton, Montenegro:** WAN/LAN network, public address system, multimedia system, IPTV, hospitality solution
9. **Hotel Reževići, Montenegro:** WAN/LAN network, video surveillance, smart room, IPTV, fire alarm system, intrusion system, public address system and access control
10. **Hotel Splendid, Montenegro:** WiFi, TETRA, Internet connection, Optics, TK network, SKS installations
11. **Hotel Princess, Montenegro:** TK network, Voice and data system Ericsson, Fire-alarm system, Hotel locks, Sound system and access control, IP Video surveillance Axis
12. **City Hotel Podgorica, Montenegro:** Optics, TK network, Voice and data system, Fire-alarm system, Hotel locks
13. **Club Hotel Riviera, Herceg Novi, Montenegro:** Optics, TK network, Voice and data system, Fire-alarm system
14. **Hotel Queen, Montenegro:** Optics TK network, Voice and data system, Internet solution
15. **M:Tel, Republic of Srpska, BiH:** Installation and implementation of IPTV multiscreen solution, largest IPTV solution in western Balkan; Access control to corporate resources, Delivery and implementation of PKI for access control; configuration, commissioning and maintenance of IBM Proventia GX-5008 from the Management Console and the Site protector; Delivery, installation, implementation of Internet gateway system on the platform Check Point to protect corporate web security resource; Installation, integration and commissioning of IPS (Intrusion Prevention System) system; Delivery of CPE equipment (Cisco, AudioCodes, Mediatrix, RAD); Supply of access control; Supply to a sustainable system for Intrusion Prevention IPS, IBM Proventia Desktop Endpoint Security-Proventia Desktop, Proventia Server IBM Proventia Server for Windows/Linux
16. **Mobile operator, VIP Mobile data center, Serbia** – Design&implementation, complete construction and architectural works, building management system, power distribution, HVAC, technical security systems like fire alarm system, public address system, access control, intrusion system, video surveillance, gas detection, fire extinguishing and external landscaping
17. **Telekom Srbija, Serbia:** Point to point, Point to multipoint, WIMAX, Wireless local loop, TETRA systems
18. **Telenor, Serbia:** Design, delivery & installation of MPLS infrastructure, MicroWave Radio Systems, power supply&UPS
19. **T mobile, Montenegro:** IPTV system
20. **Komercijalna banka Banja Luka, Republic of Srpska, BiH:** Design, supply&installation of communications and computer equipment for LAN/WAN network, storage and IT systems, Security, Application/Infrastructure servers, WorkStations, MS services, Monitoring/Microsoft, HP, Cisco Systems
21. **Nova banka ad Banja Luka, Republic of Srpska, BiH:** Supply, installation and integration of Tandberg video conferencing system
22. **Oil refinery Pančevo, Serbia:** Design&implementation of data and network security solutions



23. **Power distribution Center Kragujevac, Serbia:** Design&implementation of transformer block
24. **Data center of Energy Transmission Company, Serbia:** Design and implementation of power distribution, LAN network, HVAC, fire extinguishing, fire alarm system, video surveillance, access control
25. **Oil Industry of Serbia:** Design&delivery of LAN/WAN Fiber Optic Infrastructure and Data Transmission Network/Tyco&Draka
26. **Transnafta, Serbia:** Design&delivery of Polycom video conferencing system between Belgrade, Moscow and Sarajevo, Fiber optic, voice&data network infrastructure, video surveillance
27. **Power distribution Elektrovojvodina, Serbia:** Design&delivery of WAN/LAN Fiber Optic Infrastructure, IP Voice&Data, Audio video recording, public announcement, Network security, Motorola Two Way radio, Aastra MX-ONE Telephony System
28. **Electro Utility Company, Republic of Srpska, BiH:** Voice communication&recording
29. **City parliament, Montenegro:** Conferencing system
30. **Government building of Republic of Srpska, BiH:** Delivery, installation, measurement and certification of structural cabling system
31. **Ministry of the Interior of Republic of Srpska, BiH:** Design, supply&installation of communications and computer equipment for LAN/WAN network, storage and IT systems, Security, Application/Infrastructure servers, WorkStations, MS services, Monitoring/Microsoft, HP, Cisco Systems
32. **Ministry of Interior of Republic of Serbia:** TETRA systems
33. **Post of Republic of Serbia:** Digitalization of main headend and implementation of video solutions
34. **Serbian glass factory:** Design and installation of complete power distribution system, transformer block, middle voltage cabinets, low voltage cabinets and connections
35. **City utility company for Water & Sewerage, Serbia:** Design&delivery of LAN/WAN Fiber Optic Infrastructure and Data Transmission Network/ACD Krone GMBH
36. **Health care Agency, Montenegro:** Conferencing system
37. **Directorate of Civil Aviation, Serbia:** Data&Voice Network recording, Data&Network Security, Motorola Two way radio, Video surveillance
38. **Fire brigade, Serbia:** TETRA systems
39. **Communal police, Serbia:** TETRA systems
40. **Nikola Tesla Airport, Serbia:** Design and implementation for data center power distribution, LAN network, HVAC, fire extinguishing, fire alarm system, video surveillance, access control, active and passive network equipment
41. **University of Banja Luka, Republic of Srpska, BiH:** Delivery of Polycom video conferencing systems
42. **Medical Faculty Banja Luka, Republic of Srpska, BiH:** Delivering of multimedia equipment for amphitheater
43. **STUDEN-AGRANA, Republic of Srpska, BiH:** Design, supply, installation of passive and active network equipment: Krone, APC, Rittal, Cisco. Delivery of optical networking equipment for the implementation of HDSL link



44. **Reconstruction of student's dorm "Mika Mitrovic" Belgrade for the needs of students with disabilities, Serbia:** 5700 m<sup>2</sup> complete installation of high voltage and low voltage power supply system with delivery and installation of equipment and materials
45. **Shopping mall IDEA, Serbia:** Building management system, Fire alarm system, Public address system, HVAC and power distribution
46. **Business building Delhaize, Montenegro:** Video solution, WAN/LAN network, IPTV, fire alarm system, gas detection, public address system, intrusion system
47. **Multifunctional center TQ Plaza, Montenegro:** Building management system, fire alarm system, access control, intrusion system, smart room, digital signage, video surveillance, public address system, HVAC and power distribution
48. **Multifunctional center TQ City, Serbia:** Building management system, fire alarm system, access control, intrusion system, intercom, voice and data system, video surveillance, public address system
49. **IDDEEA (Agency for Identification Documents, Registers and Data Exchange), Republic of Srpska, BiH:** Purchasing software for monitoring Firewall Compliance Manager and Device Manager (URL monitoring, Firewall rules, generate reports)
50. **NUBA Invest/Targo Telekom, Serbia:** Fiber optic backbone 1086km, DWDM
51. **Naled (National Alliance for local economic development), Serbia:** Design&implementation of video conferencing system for 3 hospitals in Serbia
52. **Alpine GMBH, Serbia:** Design&implementation of telecommunication network and public lighting
53. **CENTRUM TRADE, Republic of Srpska, BiH:** Design, delivery, programming and commissioning of Cisco communications networking equipment. Internet access is provided for all locations and ISDN Trunks
54. **TRINITY, Republic of Srpska, BiH:** Supply, installation and integration of Tandberg video conferencing system that was implemented at the University Apeiron in Republic od Srpska
55. **INDEPENDENT NEWSPAPERS, Serbia:** Design&construction of private LAN/WAN network. Voice&data network infrastructure. Primary and backup Internet access, security-based Cisco IOS Firewall, Windows Firewall, NAT, PAT, DMZ, FTP, web and mail server

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